

EXHIBIT C

7-1 (Rev. 7-10-06)

UNCLASSIFIED

COPY



FBI Laboratory

2501 Investigation Parkway
Quantico, Virginia 22135

REPORT OF EXAMINATION

To: Boston
BS-C3
Kristin Koch

Date: July 24, 2013

Case ID No.: 415M-BS-2814367 - 10652

Lab No.: 130416021 AAR AAL
130418012 AAR AAL
130420100 AAR AAL
130421100 AAR AAL
130422101 AAR AAL

Reference: Communications dated April 19, 2013, April 23, 2013, and April 25, 2013

Your No.:

Title: UNSUBS;
4/15/2013 Boston Marathon Bombing
IT

Date specimens received: April 16-19, 2013, and April 21-22, 2013

The items listed below were submitted under cover of communication dated April 19, 2013, assigned Laboratory number 130416021, and received or examined in the Chemistry Unit Paints and Polymers Subunit:

THE FOLLOWING ITEMS WERE RECEIVED AT THE LAB ON APRIL 16, 2013:

BOYLSTON STREET, SCENE 1 (SCENE A)

Q8.1 Sampling of unknown material from Q8 (Your S8, E5180220)

FROM HOSPITAL

Q31 Piece of debris from Steven Byrne (Your H100C, E5180246)

*Rpt uploaded +
mailed on
7/30/13
an*

UNCLASSIFIED

COPY

BOYLSTON STREET, SCENE 2 (SCENE B)

- Q49.1 Two (2) pieces of wire, two (2) pieces of black plastic, and one (1) piece of metal (Your S2065, E5180268)
- Q51 Heavy gauge wire (Your S2079, E5180269)

THE FOLLOWING ITEMS WERE RECEIVED AT THE LAB ON APRIL 17, 2013 (SUBMISSION 2):

BOYLSTON STREET, SCENE 1 (SCENE A)

- Q101 Metal fragment with fibers and red stains (Your S60, E5180299)
- Q106 Copper-colored wires (Your S65, E5180294)
- Q109.2 Wire (Your S91, E5180290)

THE FOLLOWING ITEMS WERE RECEIVED AT THE LAB ON APRIL 18, 2013 (SUBMISSION 1):

BOYLSTON STREET, SCENE 2 (SCENE B)

- Q119 Piece of gray fabric (Your S2119, E5180344)
- Q119.1 Piece of white caulk (Your S2119, E5180344)
- Q119.2 Gray string material (Your S2119, E5180344)
- Q119.3 Piece of black fabric (Your S2119, E5180344)
- Q120.1 Sampling of unknown material from Q120 (Your S2125, E5180341)
- Q129.1-Q129.3 Sampling of unknown material from Q129 (Your S2045, E5180379)
- Q138 Electrical components and white caulk material (Your S2139, E5180436)
- Q139 Soil from blast seat (Your S2048, E5180431)

Page 2 of 13

130416021 AAR AAL
130418012 AAR AAL
130420100 AAR AAL
130421100 AAR AAL
130422101 AAR AAL

UNCLASSIFIED

UNCLASSIFIED

COPY

Q139.1-Q139.2	Sampling of unknown material from Q139 (Your S2048, E5180431)
Q145.1	Sampling of unknown material from Q145 (Your S2022, E5180332)
Q149.1-Q149.2	Sampling of unknown material from Q149 (Your S2042, E5180382)
Q157.2-Q157.4	Sampling of unknown material from Q157 (Your S2093, E5180355)

BOYLSTON STREET, SCENE 1 (SCENE A)

Q171	Five (5) wire pieces, two (2) plastic pieces, and one (1) switch (Your S110, E5180340)
Q177	Wire (Your S117, E5180403)
Q183	Burned cardboard fragments and BB (Your S131, E5180454)
Q188	One (1) wire and two (2) pieces of plastic (Your S136, E5180458)
Q190	Wires (Your S84, E5180445)
Q195	Wire pieces and one (1) plastic piece (Your S121, E5180449)
Q209.4-Q209.5	Sampling of unknown material from Q209 (Your S123, E5180417)
Q214.1-Q214.2	Sampling of unknown material from Q214 (Your S149, E5180462)
Q215	Green wire piece (Your S152, E5180465)

The items listed below were submitted under cover of communication dated April 23, 2013, assigned Laboratory number 130418012, and received or examined in the Chemistry Unit Paints and Polymers Subunit:

THE FOLLOWING SPECIMENS WERE RECEIVED BY THE LAB ON APRIL 18, 2013:

Page 3 of 13

130416021 AAR AAL
130418012 AAR AAL
130420100 AAR AAL
130421100 AAR AAL
130422101 AAR AAL

UNCLASSIFIED

UNCLASSIFIED

COPY

SCENE 2 (SCENE B)

Q234 Three (3) pieces of wire (Your S2204, E5182215)
Q240 One (1) piece of wire and one (1) piece of rubber (Your S2175, E5182288)
Q241 One (1) piece of wire and one (1) piece of fabric (Your S2178, E5182327)
Q250 One (1) piece of wire (Your S2132, E5182231)

THE FOLLOWING SPECIMENS WERE RECEIVED BY THE LAB ON APRIL 19, 2013:

MEDICAL EXAMINER'S OFFICE

Q260.1 Sampling of unknown material from Q260 (Your ME9, E5182425)
Q268.4 Sampling of unknown material from Q268 (Your ME7, E5182423)
Q269.4 Sampling of unknown material from Q269 (Your ME12, E5182298)

SCENE 2 (SCENE B)

Q292.1 Sampling of unknown material from Q292 (Your S2311, E5182473)

SCENE 1 (SCENE A)

Q319 Two (2) wire pieces (Your S167, E5180473)
Q336.1-Q336.2 Sampling of unknown material from Q336 (Your S269, E5180508)
Q371 Two (2) wires (Your S245, E5180521)
Q383.1 Sampling of unknown material from Q383 (Your S238, E5180581)
Q384.1 Sampling of unknown material from Q384 (Your S266, E5180549)
Q385.1 Sampling of unknown material from Q385 (Your S112, E5182464)

Page 4 of 13

130416021 AAR AAL
130418012 AAR AAL
130420100 AAR AAL
130421100 AAR AAL
130422101 AAR AAL

UNCLASSIFIED

UNCLASSIFIED

COPY

Q386.1	Sampling of unknown material from Q386 (Your S267, E5180552)
Q387.1	Sampling of unknown material from Q387 (Your S248, E5180547)
Q392. 2	Sampling of unknown material from Q392 (Your S170, E5180579)
Q398.1	Sampling of unknown material from Q398 (Your S260, E5182470)
Q401.1	Sampling of unknown material from Q401 (Your S279, E5180545)
Q402.1	Sampling of unknown material from Q402 (Your S272, E5180551)
Q404.1	Sampling of unknown material from Q404 (Your S162, E5180574)
Q405.1	Sampling of unknown material from Q405 (Your S181, E5180578)
Q415.1	Sampling of unknown material from Q415 (Your S354, E5182515)
Q418.1	Sampling of unknown material from Q418 (Your S355, E5182513)
Q422.1	Sampling of unknown material from Q422 (Your S319, E5182494)
Q434.1	Sampling of unknown material from Q434 (Your S302, E5182493)
Q438	Wire pieces and metal pieces (Your S311, E5182505)
Q463.1	Sampling of unknown material from Q463 (Your S73, E5182171)
Q469	BBs (Your S76, E5182173)

SCENE 2 (SCENE B)

Q480.3	White caulk material from Q480 (Your S2140, E5182185)
Q489.1	Sampling of unknown material from Q489 (Your S2227, E5182267)
Q495.1	Sampling of unknown material from Q495 (Your S2320, E5182481)
Q498.2-Q498.5	Sampling of unknown material from Q498 (Your S2310, E5182485)

Page 5 of 13

130416021 AAR AAL
130418012 AAR AAL
130420100 AAR AAL
130421100 AAR AAL
130422101 AAR AAL

UNCLASSIFIED

UNCLASSIFIED

COPY

Q508.1-Q508.2	Sampling of unknown material from Q508 (Your S2256, E5182379)
Q514.1	Sampling of unknown material from Q514 (Your S2276, E5182395)
Q515.3	Unknown material and white caulk material from Q515 (Your S2203, E5182265)
Q516.1-Q516.2	Sampling of unknown material from Q516 (Your S2255, E5182358)
Q517.1-Q517.2	Sampling of unknown material from Q517 (Your S2242, E5182363)
Q526.1-Q526.2	Sampling of unknown material from Q526 (Your S2205, E5182268)
Q527.1-Q527.2	Sampling of unknown material from Q527 (Your S2191, E5182212)
Q535.1	Sampling of unknown material from Q535 (Your S2307, E5182484)
Q536.1	Sampling of unknown material from Q536 (Your S2308, E5180591)
Q537	Unknown material (Your S2309, E5182488)
Q538.1	Sampling of unknown material from Q538 (Your S2165, E5182149)
Q550.1	Sampling of unknown material from Q550 (Your S2167, E5182289)
Q554.1	Sampling of unknown material from Q554 (Your S2088, E5182192)

The items listed below were submitted under cover of communication dated April 23, 2013, assigned Laboratory number 130420100, and received or examined in the Chemistry Unit Paints and Polymers Subunit:

THE FOLLOWING SPECIMENS WERE FROM LAUREL STREET AND RECEIVED IN THE LAB ON APRIL 21, 2013:

Q594.1	Sampling of unknown material from Q594 (Your #1W-28, E5179242)
Q595.1	Sampling of unknown material from Q595 (Your #1W-40, E5179254)

Page 6 of 13

130416021 AAR AAL
130418012 AAR AAL
130420100 AAR AAL
130421100 AAR AAL
130422101 AAR AAL

UNCLASSIFIED

UNCLASSIFIED

COPY

Q603	Wire (Your #1W-47, E5179261)
Q606.1	Sampling of unknown material from Q606 (Your #1W-49, E5179263)
Q612	Green wire (Your #1W-29, E5179243)
Q619.1	Sampling of unknown material from Q619 (Your #1W-44, E5179258)
Q624.1	Sampling of unknown material from Q624 (Your #1W-69, E5179283)
Q625.1	Sampling of unknown material from Q625 (Your #1W-67, E5179281)
Q626.1	Sampling of unknown material from Q626 (Your #1W-70, E5179284)
Q632.1	Sampling of unknown material from Q632 (Your #1W-83, E5179307)
Q635.1	Sampling of unknown material from Q635 (Your #1W-72, E5179286)
Q641	Wire (Your #1W-80, E5179294)
Q644.1	Sampling of unknown material from Q644 (Your #1W-98, E5179302)
Q646.1	Sampling of unknown material from Q646 (Your #1W-85, E5179310)
Q652.1	Sampling of unknown material from Q652 (Your #1W-93, E5179309)
Q662.1	Sampling of unknown material from Q662 (Your #1W-92, E5179311)
Q664.1	Sampling of unknown material from Q664 (Your #1W-96, E5179304)

The items listed below were submitted under cover of communication dated April 25, 2013, assigned Laboratory number 130421100, and received or examined in the Chemistry Unit Paints and Polymers Subunit:

THE FOLLOWING SPECIMENS WERE RECEIVED BY THE LAB ON APRIL 21, 2013:

Page 7 of 13

130416021 AAR AAL
130418012 AAR AAL
130420100 AAR AAL
130421100 AAR AAL
130422101 AAR AAL

UNCLASSIFIED

UNCLASSIFIED

COPY

Items from residence, 410 Norfolk Street, Apt. 3, Cambridge, MA:

Q679	Tube of GE brand silicone sealant (Your 1B1264, E5179123)
Q691	Caulk gun with tube of GE brand silicone sealant (Your 1B1263, E5179124)
Q691.1	Lid from Q691 (Your 1B1263, E5179124)
Q701	One (1) plastic bag (Your 1B1307, E5179171)
Q701.1	One (1) bottle of Gorilla brand super glue (Your 1B1307, E5179171)
Q725.3	One (1) spool of green wire and one (1) spool of black wire (Your 1B1352, E5179153)
Q726	Box for two-hundred (200) mini-lights (Your 1B1350, E5179151)
Q726.1	Two-hundred (200) mini-lights (Your 1B1350, E5179151)

The items listed below were submitted under cover of communication dated April 23, 2013, assigned Laboratory number 130422101, and received or examined in the Chemistry Unit Paints and Polymers Subunit:

THE FOLLOWING ITEM WAS ACQUIRED FROM RESUSCITATION ROOM 20, BETH ISRAEL HOSPITAL ER, BOSTON, MASSACHUSETTS AND RECEIVED BY THE LAB ON APRIL 22, 2013:

Q749	Fragment (Your 1B1012, E5180964)
------	----------------------------------

This report contains the results of the requested polymer and wire insulation examinations.

Page 8 of 13

130416021 AAR AAL
130418012 AAR AAL
130420100 AAR AAL
130421100 AAR AAL
130422101 AAR AAL

UNCLASSIFIED

UNCLASSIFIED

COPY

Results of Examinations:Polymer Examinations:

Polymeric materials within various items submitted from Scene A, Scene B, the Medical Examiner's Office, the Laurel Street scene, and Apartment 3 at 410 Norfolk Street were examined. Based on initial physical and chemical examinations, multiple polymers were present within these items.

Scene A includes the Q8.1, Q209.4, Q214.1, Q336.1, Q383.1, Q384.1, Q385.1, Q386.1, Q387.1, Q392.2, Q398.1, Q401.1, Q402.1, Q404.1, Q405.1, Q415.1, Q418.1, Q422.1, Q434.1, and Q463.1 materials, which are all colorless silicone rubbers.

Scene B includes two types of polymeric materials. The following all contain white rubbers: Q119.1, Q129.2, Q138, Q139 (white rubber designated as Q139.2), Q149.2, Q157.2, Q480.3, Q498.2, Q508.1, Q515.3, Q516.1, Q517.1, Q526.1, and Q527.1. The Q119.1 material was chosen as representative of these for chemical analysis, and it was determined that Q119.1 is a silicone rubber. The following all contain physically similar rubbers with heterogeneous color distribution: Q120.1, Q129.1, Q139 (this rubber designated as Q139.1), Q145.1, Q149.1, Q157.4, Q292.1, Q489.1, Q495.1, Q498.5, Q508.2, Q514.1, Q515.3, Q516.2, Q517.2, Q526.2, Q527.2, Q535.1, Q536.1, Q537, Q538.1, Q550.1, and Q554.1. The Q537 material was chosen as representative of these for chemical analysis, and it was determined that Q537 was an acrylic-based material.

The Medical Examiner samples include the Q260.1, Q268.4, and Q269.4 materials. Q260.1 and Q268.4 are acrylic-based materials, and Q269.4 is a colorless silicone rubber.

The Laurel Street samples include the Q594.1, Q595.1, Q606.1, Q619.1, Q624.1, Q625.1, Q626.1, Q632.1, Q635.1, Q644.1, Q646.1, Q652.1, Q662.1, and Q664.1 materials, which are all colorless silicone rubbers.

The 410 Norfolk Street apartment samples include the Q679 and Q691 tubes of sealant, which are both colorless silicone sealants, as well as the Q701.1 glue.

Based on the comparative examinations conducted, the colorless silicones from Scene A, Laurel Street, and the Medical Examiner's office are all consistent with having originated from the same source or from different sources with the same chemical composition. Further, the Q691 tube of sealant cannot be differentiated from the various colorless silicone polymers from Scene A and Laurel Street, or from Q269.4 from the Medical Examiner's office. Therefore, Q691 cannot be eliminated as a possible source of these colorless silicones (*Level IV*

Page 9 of 13

130416021 AAR AAL
 130418012 AAR AAL
 130420100 AAR AAL
 130421100 AAR AAL
 130422101 AAR AAL

UNCLASSIFIED

UNCLASSIFIED

COPY

Association). This opinion was reached because although no differences were detected, silicones are mass-produced materials, and other items would share the same physical and chemical properties and would also be indistinguishable from these items.

The Q701.1 glue and the Q679 tube of silicone sealant differ physically and/or chemically from the various polymeric materials present in the items listed above from Scene A, Scene B, the Medical Examiner's office, and the Laurel Street scene. Therefore, Q679 and Q701.1 can be excluded as possible sources of these materials (*Elimination*).

The following unknown materials were visually, stereomicroscopically, and/or chemically examined and found to have paint or polymer characteristics: Q129.3, Q157.3, Q209.5, Q214.2, Q336.2, Q498.3, and Q498.4. However, these samples were unlike the other polymeric materials observed and were possibly debris from the scenes. Therefore, no comparisons were conducted.

The following analytical techniques were utilized in the examination of these items of evidence: visual and stereomicroscopical observations, Fourier transform infrared spectroscopy (FTIR), scanning electron microscopy with energy dispersive X-ray spectroscopy (SEM/EDS), pyrolysis-gas chromatography/mass spectrometry (Py-GC/MS), X-ray fluorescence spectroscopy (XRF), Direct Analysis in Real Time Mass Spectrometry (DART-MS), and Raman spectroscopy.

The following items did not contain polymeric material: the Q31 debris, the Q101 metal, the Q183 materials, the Q469 BBs, and the Q749 fragment.

Wire Insulation Examinations:

The wire insulations from the following locations were examined and compared: Scene A (Q106, Q109.2, Q171, Q177, Q188, Q190, Q195, Q215, Q319, Q371, and Q438); Scene B (Q49.1, Q51, Q234, Q240, Q241, and Q250); Laurel Street (Q603, Q612, and Q641); and the Norfolk Street Apartment (Q725.3 and Q726.1). All of these items had green insulation present. There was also red insulation in items Q171, Q195, and Q438 from Scene A and a spool of black insulated wire in item Q725.3 from the apartment.

All the wire insulations examined from Scene A, Scene B, and Laurel Street differ from the wire insulations examined from the Norfolk Street apartment (Q725.3 and Q726.1). Therefore, neither Q725.3 nor Q726.1 is the source of the recovered wires (*Elimination*).

Samples of the wire insulation from Q51, Q190, and Q612 were taken as representative of the insulation from Scene B, Scene A, and Laurel Street, respectively, and

Page 10 of 13

130416021 AAR AAL
130418012 AAR AAL
130420100 AAR AAL
130421100 AAR AAL
130422101 AAR AAL

UNCLASSIFIED

UNCLASSIFIED

COPY

compared chemically. Based on these examinations, the insulations from Q51, Q190, and Q612 were indistinguishable. Therefore, these insulations could have originated from the same source of wiring or from different sources of insulation with the same chemical composition (*Level IV Association*). This opinion was reached because although no differences were detected, wire insulation is mass-produced, and other insulations are available that would share the same physical and/or chemical properties as Q51, Q190, and Q612.

The following analytical techniques were utilized in the examination of these items of evidence: visual and stereomicroscopical observations, Fourier transform infrared spectroscopy (FTIR), scanning electron microscopy with energy dispersive X-ray spectroscopy (SEM/EDS), and pyrolysis-gas chromatography/mass spectrometry (Py-GC/MS).

Interpretation:

Based on the reported results, more than one type of polymeric material was recovered from and concluded to be indistinguishable between the various scenes. These findings may increase the significance of the results.

The following descriptions are meant to provide context to the levels of opinions reached in this report. Every level of conclusion may not be applicable in every case nor for every material type.

Level I Association: A physical match; items physically fit back to one another, indicating that the items were once from the same source.

Level II Association: An association in which items are consistent in observed and measured physical properties and/or chemical composition and share atypical characteristic(s) that would not be expected to be readily available in the population of this evidence type.

Level III Association: An association in which items are consistent in observed and measured physical properties and/or chemical composition and, therefore, could have originated from the same source. Because other items have been manufactured that would also be indistinguishable from the submitted evidence, an individual source cannot be determined.

Level IV Association: An association in which items are consistent in observed and measured physical properties and/or chemical composition and, therefore, could have

Page 11 of 13

130416021 AAR AAL
130418012 AAR AAL
130420100 AAR AAL
130421100 AAR AAL
130422101 AAR AAL

UNCLASSIFIED

UNCLASSIFIED

COPY

originated from the same source. As compared to a *Level III Association*, items categorized within a *Level IV* share characteristics that are more common amongst these kinds of manufactured products. Alternatively, an association between items would be categorized as a *Level IV* if a limited analysis was performed due to the characteristics or size of the specimen(s).

Level V Association: An association in which items are consistent in some, but not all, physical properties and/or chemical composition. Some minor variation(s) exists between the known and questioned items and could be due to factors such as sample heterogeneity, contamination of the sample(s), or having a sample of insufficient size to adequately assess the homogeneity of the entity from which it was derived.

Inconclusive: No conclusion could be reached regarding an association/elimination between the items.

Elimination: The items were dissimilar in physical properties and/or chemical composition, indicating that they did not originate from the same source.

Remarks:

The following items were received but not examined in the Chemistry Unit Paints and Polymers Subunit: the Q119 fabric, the Q119.2-Q119.3 string and fabric, the Q691.1 lid, the Q701 bag, and the Q726 box.

The disposition of the items listed will be the subject of a separate communication.

The supporting records for the opinions and interpretations expressed in this report are retained in the FBI files.

For questions about the content of this report, please contact Forensic Examiner Andria Mehlretter at (703) 632-7415.

130416021 AAR AAL
130418012 AAR AAL
130420100 AAR AAL
130421100 AAR AAL
130422101 AAR AAL

UNCLASSIFIED

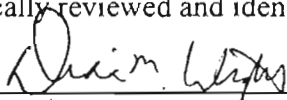
UNCLASSIFIED

COPY

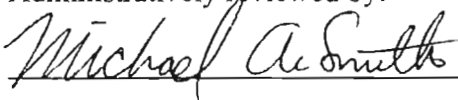
For questions about the status of your submission, including any remaining forensic examinations, please contact Request Coordinator Edward Knapp at (703) 632-7644.

Andria Mehlretter, M.S., F-ABC
Chemistry Unit

Technically reviewed and identifications and associations confirmed by:

 Date: 7/24/13

Administratively reviewed by:

 Date: 7/25/13

Page 13 of 13

This report contains the opinions/interpretations of the examiner(s) who issued the report.

130416021 AAR AAL
130418012 AAR AAL
130420100 AAR AAL
130421100 AAR AAL
130422101 AAR AAL

UNCLASSIFIED